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No. XXXI.

An Account of Two Heads found in the Morass, called the Big Bone Lick, and presented to the Society, by Mr. Jefferson. By Caspar Wistar, M. D.

THE two heads which are the subjects of the following observations, were selected from a large number of bones presented to the society by our much venerated President Jefferson. Being satisfied that the morass near the falls of Ohio, called the *Big Bone Lick*, still contained many animal remains which were worthy of attention, he engaged General Wm. Clarke, who is so honourably known to the world by his Journey to the Pacific Ocean, to explore it, and furnished him with all the means necessary for so expensive an undertaking.

Gen. Clarke accomplished the business committed to him with great promptitude, and procured several large boxes of bones.—It was Mr. Jefferson's determination to present to this society, a complete specimen of every new thing found there, which was any way interesting, and to send to the Institute of France, the duplicates which remained after the selection for the society was made. With this view he requested me to examine the collection, and, in a very impressive manner, expressed his intention in favour of the society, as above stated.

I found that the great mass consisted of the bones of the large animal, formerly of this country, to which the name of *Mastodonte* has lately been given by M. Cuvier. Among these were also some large teeth, which I supposed to have belonged to the Elephant of Siberia, and several specimens of smaller teeth of the same kind, with the lower jaw-bones to which they belonged, evidently of young animals. There were also several tusks; one similar to that which Mr. Peale procured with his skeleton of the *Mastodonte*, and some others of the Elephant of Asia or Africa.

Besides these there were several mutilated heads. Two, which were in the best preservation, are the subjects of the following memoir. Several others, which probably are of the genus *Bos*, are so decayed, that it is impossible to decide confidently respecting them.

There are also some single bones of the extremities of smaller animals.

As the society, in consequence of the great ingenuity and industry of Mr. Peale, have the use of a skeleton of the Mammoth, which is complete in all respects but the head; I made a large selection of bones of the *Mastodonte* for the Institute, but reserved for the society all the fragments which belonged to the head.

The mutilated and decayed heads, as they were all single specimens, I reserved for the society, and also a large proportion of the teeth, and lower jaw-bones of the Siberian Elephant, with the other bones above mentioned. By some accident the young teeth and jaw-bones of the Siberian Elephant have not reached us.* The other bones arrived, and the following account of the two heads, which are in the best state of preservation, is the commencement of my description of the collection.

* Probably they went to France by mistake.

In Plate X. fig. 4 and fig. 5. are two views of one of these heads, which I believe to have belonged to an animal of the genus *Cervus*. The figure 4, exhibits the upper and posterior surfaces of the cranium and horns, as they appear when the head is viewed from behind. The figure 5, represents a profile view. The upper surface of the left portion of the cranium has been abraded, the line which separates the natural from the abraded surface begins at *a* fig. 4, and extends backwards in the manner represented in the plate. The surface of the cranium to the right of this line appears uninjured.

The breadth of the cranium at its narrowest part, from *b* to *b*, fig. 4, is 4.75 inches, the distance from *c* to *c* is 7 inches. The depth of the cranium from *e* fig. 5, at the margin of the occipital surface, to the most distant part of the great foramen of the occipital bone, is 5.25 inches. From *d*, in the same figure, to the body of the sphenoidal bone immediately under it, 4.7 inches. The length of the cranium, from *e* above mentioned, to *f*, which is the middle of the space between the horns, is 6.37 inches.

If it belonged to the genus *Cervus*, it was one of the largest species of that genus.

That it might be compared with the two other large species of *Cervus* which now exist here, viz. the round horned Elk of Mr. Jefferson, the *Cervus Wapiti* of Dr. Barton; and the Moose, or *Cervus Alces*; there are two similar views of the craniums of each of these animals. The figures 6 and 7, Plate X, exhibit the cranium of the Round Horned Elk; and figs. 8 and 9, in Plate XI. that of the Moose or *Cervus Alces*. The horns of each of them, as they would have prevented the view, are represented as sawed off.

The comparison of figures 4 and 5, with figures 6 and 7, shews that the lately discovered cranium resembled that of the Round Horned Elk at the occiput, although it differs from it greatly in the position and the projection of the horns.

There is also in the Round Horned Elk a considerable prominence of the frontal bone, between the bases of the horns, (see *g* figs. 6 and 7.) which does not appear to have been the case in the newly discovered head. The horns of this last mentioned head have a concavity or depression of the under surface near the root, (see *b b* fig. 4.) which is not the case in the Round Horned Elk.*

The cranium of the Moose or *Cervus Alces*, (fig. 8. fig. 9. Plate XI.) is very different. The occipital portion is concave exteriorly, and the superior margin has an angular indentation in the middle of it, (see *e*, fig. 9.) There is a remarkable prominence of the frontal bone, between the horns, which extends considerably towards the nose (*a* fig. 8, *a* fig. 9.) The horns of it project laterally like those of the newly discovered head, and they have a concavity of the under surface near the root.

Having measured the two last mentioned craniums, for the purpose of comparing them with the first, I found that, in the Round Horned Elk, the width in the narrowest part, a little posterior to *b, b*, fig. 6, is 4.5 inches, and at *c, c*, is 6.4 inches. The depth of the cranium from the upper part of the margin of the occiput to the most distant part of the occipital foramen, is 4.5 inches. The distance from the middle of the upper margin of the occipital surface, to a central point between the horns, is 4.4 inches.

In the Moose or *Cervus Alces* the distance from *b*, to *b*, fig. 8, is 4.3 inches—from *c*, to *c*, 6.9 inches. The depth of the cranium from the upper margin of the occiput to the most distant part of the occipital foramen is 5.3 inches—Distance from *e* to *a*, fig. 9, is 5.3 inches, on a straight line.

* The Round Horned Elk has not received from European naturalists the attention which is due to so superb an animal; although he has been described by Mr. Jefferson in his Notes on Virginia, Dr. Barton in his Medical and Physical Journal, and the late Dr. E. Smith in the Medical Repository.—Few persons who have not seen him when his horns are of full size, (more than four feet in length,) can form an adequate idea of his appearance.

I believe that each of these last mentioned heads is at least of the ordinary size, as their horns are large; and it appears, from a comparison of the respective measurements, that the head lately discovered is larger than either of them.

The second head is also very different from that of any animal now known here, and therefore two views of it are exhibited in Plate XI., viz. fig. 10 and fig. 11. For the purposes of comparison, there is in the same plate a posterior view of the head of the common ox, fig. 12; and a similar view of the head of the bison of this country, fig. 13.

In the size and form of the horns, fig. 10, fig. 11, this head has some resemblance to the genus *Bos*, but it differs from the domestic animals of that genus in several important particulars.

In those animals the horns are placed at the junction of the facial and occipital surfaces of the cranium (see fig. 12.) at a very considerable distance behind or above the eyes; whereas in this head (fig. 10, fig. 11.), the horns are at a considerable distance in front of the occipital surface, and not far from the orbits of the eyes. This difference is very apparent when the posterior view of this head, see fig. 11, is compared with fig. 12, the similar view of the head of the common ox.

There is less difference between this head, fig. 11, and that of the bison, fig. 13; for the horns of the bison are also at some distance in front of the occipital surface, although not so far as those of this head. By comparing fig. 12, fig. 13, and fig. 11, it will appear that the position of the horns of the bison, is midway between that of the horns of the common ox, and of this head; and that the concavity (*h*) under and behind the horn, in each of the specimens, is varied in regular gradation.

The head under examination, differs from the heads of the ox and the bison, in the facial surface; for in those animals that surface is uniformly flat or plane, whereas in this head,

there is a convexity of that portion of it which is between the horns, (see *i* fig. 10, *i* fig. 11.) so that those portions of the facial surface, which are before and behind the horns, form a considerable angle with each other.

In this circumstance, and also in the position of the horns, it has some resemblance to the heads of the deer, sheep, and goat, but I believe it did not belong to either of those genera.

The horns are not of a deciduous nature like those of the *genus Cervus*, but appear to consist of bone of the ordinary kind, like those of the *ox*, *goat*, *sheep*, or *antelope*. They differ also from those of the *sheep* and *goat*, as they project from the lateral surface of the cranium like those of the *genus Bos*, and not from the upper surface like those of the above-mentioned animals. They are also round and conical like those of the *genus Bos*, while the horns of sheep and goats are generally more or less angular.

The occipital surface of this head (see fig. 11.) resembles strongly that of the bison (fig. 13.), the rough surface *k* fig. 11, being produced by abrasion.

Was not this animal nearly allied to the bison?

Fig. 1.

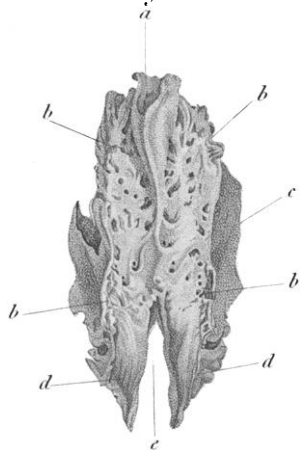


Fig. 2.



Fig. 3.

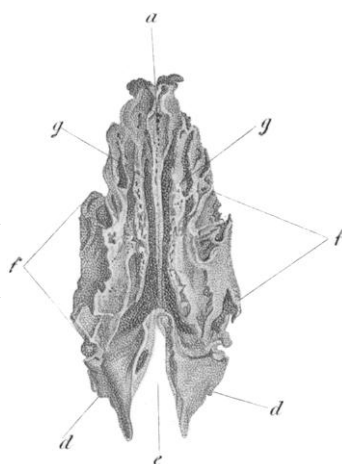


Fig. 4.

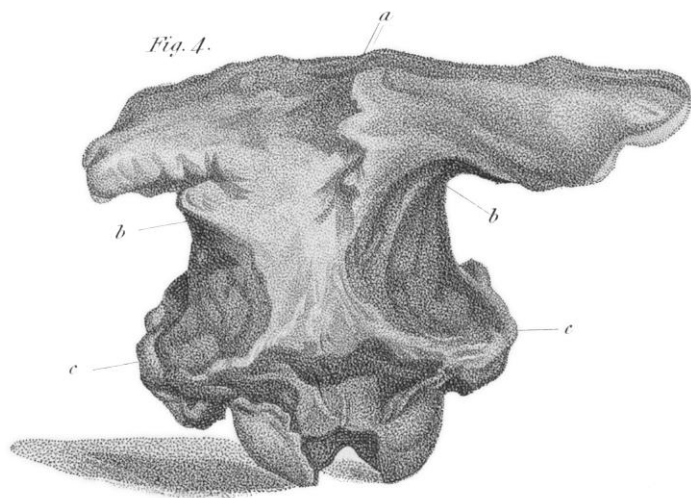


Fig. 5.

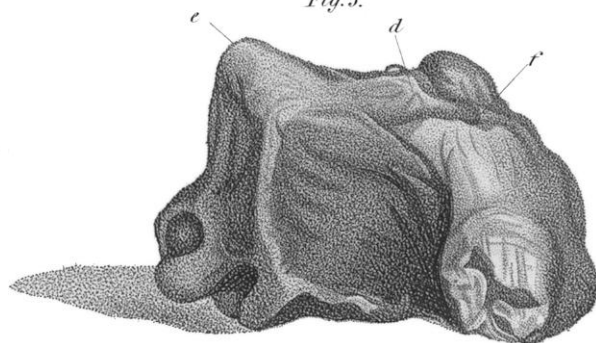


Fig. 6.

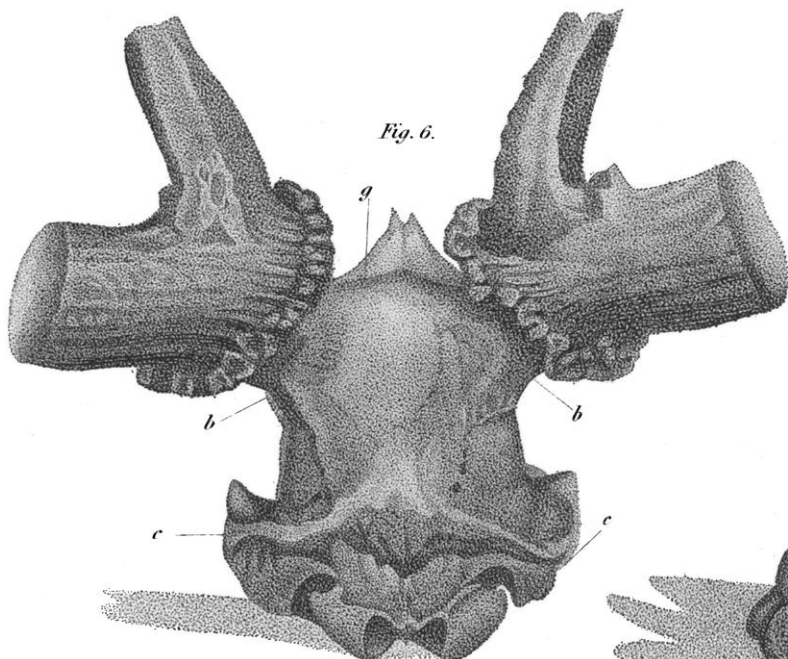


Fig. 7.

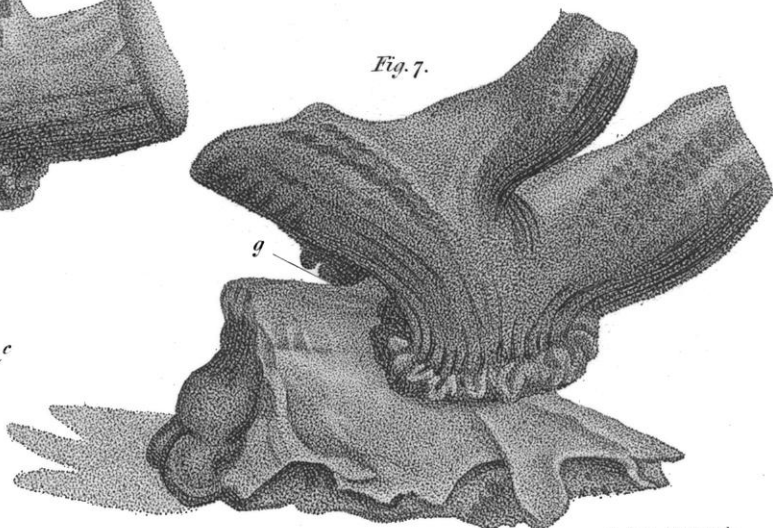


Fig. 8.

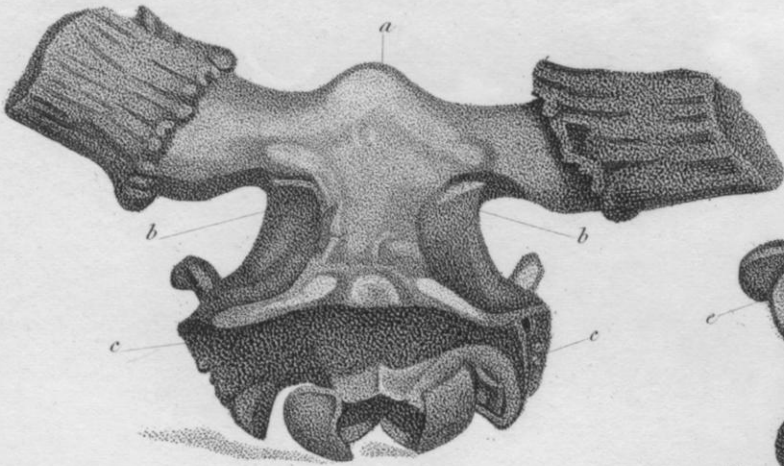


Fig. 9.

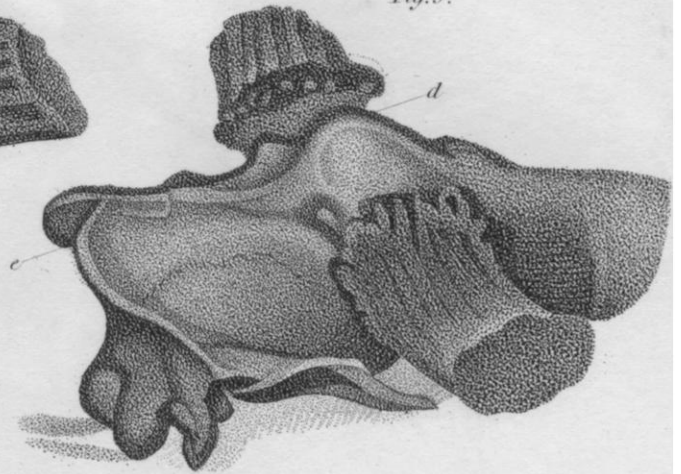


Fig. 10.

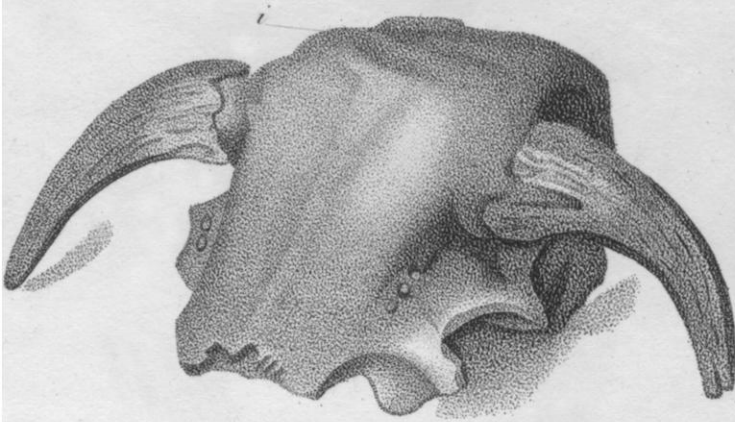


Fig. 11.

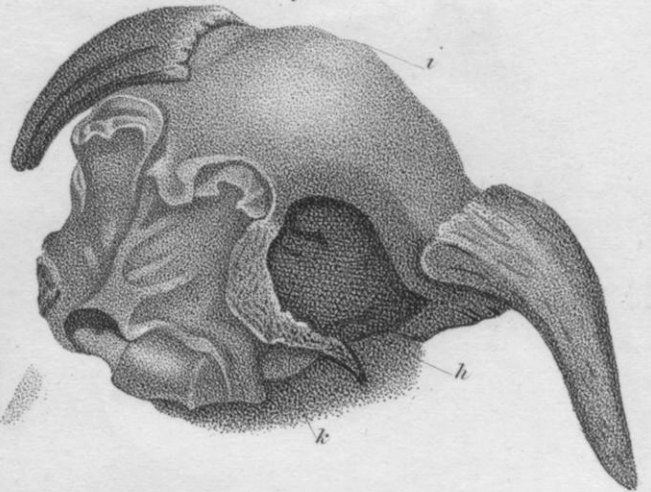


Fig. 12.

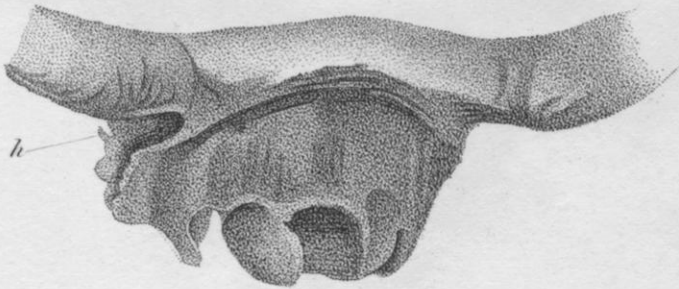


Fig. 13.

